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(54) Dispenser for Coiled Material Having Improved Operator
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(73) Same as inventor

(30) (US) 652,323 1991/02/07

(57) 15 Claims

Notice: The specification contained herein as filed

Canada

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Dispenser for Coiled Material Having
Improved Operator Actuator and Drive Mechanism

Abstract

A dispenser for coiled material has an improved operator actuator and drive mechanism. An actuator or button is conveniently located on the front of the dispenser, and the actuator or button, when pressed or pushed by the operator, activates a horizontally reciprocative gear rack to drive a drive roller and an idler roller to dispense a predetermined length of coiled material from the dispenser. The horizontally reciprocative gear rack has grooves which act on the drive gear to move the drive roller in a given direction when actuated by the operator. A ratchet/slip clutch interconnects the drive gear and drive roller so as to provide for unidirectional movement of the drive roller, that is, movement of the drive roller in one direction when the user pushes the actuator, and no movement of the drive roller when the actuator is released by the operator and returns to its original position. An idler gear on the idler roller and a drive gear on the drive roller coact to cause the idler roller and the drive roller to rotate in unison but in opposite directions.

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Description

Dispenser for Coiled Material Having
Improved Operator Actuator and Drive Mechanism

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Technical Field

The present invention generally relates to a dispenser for coiled material having an improved operator actuator and drive mechanism. In accordance 10 with one feature of the invention, the dispenser has an actuator or button conveniently located on the front of the dispenser. The actuator or button, when pressed or pushed by the operator, activates a horizontally reciprocative drive mechanism so as to 15 drive a drive roller and dispense a predetermined length of towel from the dispenser. Other features of the invention include provision of a ratchet/slip clutch interconnecting a drive gear and a drive roller of the dispenser, and coaction of the drive 20 gear with an idler gear during operation of the dispenser.

Background Art

Roll towel dispensers typically feed paper 25 towel from a roll in the dispenser through a discharge opening by operation of a pair of cooperating feed rollers. The actuator or means employed by the operator for dispensing towel from the dispenser varies from one arrangement to the 30 next.

One form of dispenser is operated by means of a lever or handle extending outwardly from the front of the cabinet. Downward movement of the lever or handle by the operator results in rotation of the

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feed rollers and a predetermined length of towel is dispensed through the discharge opening. A second type of dispenser utilizes a small crank located on the side of the cabinet, and rotation of the crank by the operator results in the dispensing of a continuous length of paper towel from the dispenser.

Dispenser arrangements of the prior art present significant disadvantages. A primary disadvantage is inconvenience to, or the need for excessive effort by, the user. For example, arrangements employing a lever or handle require the user to move the lever or handle, with more than a minimal effort, through a significant distance in order to dispense towel.

A further disadvantage of arrangements of the prior art resides in the fact that such arrangements are prone to slippage of the coiled material as it is dispensed, and this can result in jamming of the coiled material during the dispensing operation. This problem results from the fact that, in such prior art arrangements, pressure is not maintained on both sides of the coiled material as it is dispensed.

Therefore, it is considered desirable to develop a dispenser for coiled material having an improved operator actuator and drive mechanism. Specifically, it would be advantageous to develop a roll towel dispenser which requires only a minimal effort on the part of the user. It would also be considered advantageous to develop a roll towel dispenser in which pressure is maintained on both sides of the roll towel as it is dispensed, thereby preventing slippage of the roll towel and consequent jamming of the dispenser.

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The following patents are considered to be typical of the prior art relative to the invention disclosed herein: 3,214,227; 3,269,590; 3,269,591; 3,313,583; 3,276,706; 3,436,001; 3,456,854; 5 3,511,419; 3,843,218; 3,917,191; 3,971,607; 4,106,684; 4,135,678; 4,137,805; 4,165,138; 4,206,858; 4,213,363; 4,314,679; 4,358,169; 4,378,912; 4,383,657; 4,403,748; 4,406,421; 4,579,268; 4,598,664; 4,611,768; 4,621,755; 10 4,635,837; 4,666,099; 4,690,345; 4,773,608; 4,786,005; 4,846,412; and 4,934,575.

Disclosure of Invention

The present invention generally relates to 15 a dispenser for coiled material having an improved operator actuator and drive mechanism. In accordance with one feature of the invention, a roll towel dispenser has a push-button or similar push-type actuator conveniently disposed on the front of the 20 dispenser. In short, when the operator pushes or presses the actuator, a horizontally reciprocative gear rack moves through a predetermined distance so as to operate on a pinion drive mechanism, causing cooperating feed rollers to dispense a predetermined 25 length of towel through the discharge opening of the dispenser.

In accordance with the invention, the push-button or push-type actuator is part of an overall pendulum-type device which rotates to the rear of the 30 dispenser when pushed by the user, and which, under spring action, returns to its original position once the user removes pressure from the push-button. The horizontally reciprocative gear rack is formed on an

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inner portion of the pendulum-type device so as to operate on an adjacent pinion drive mechanism.

As a result of the unique and novel design of the present invention, as will be described in 5 more detail below, a minimal effort on the part of the user is required in order to dispense a predetermined length of towel through the discharge opening of the dispenser.

In accordance with another feature of the 10 invention, a ratchet/slip clutch interconnects a drive gear and a drive roller of a dispenser so as to provide for unidirectional movement of the drive roller, that is, movement of the drive roller in one direction when the user operates an actuator, and no 15 movement of the drive roller when the actuator is released by the operator and/or returns to its original position.

In accordance with a further feature of the 20 invention, coiled material or roll towel is conveyed between an idler roller and a drive roller toward the discharge opening, and the idler roller is geared to the drive roller so as to be driven by the drive roller during the dispensing operation. As a result, pressure is maintained on both sides of the coiled 25 material during the dispensing operation, and this prevents slippage and consequent jamming of the dispenser. Other advantages of the invention will become evident from the detailed description below, the appended claims, and the accompanying drawings.

30 It should be noted that the latter two features -- provision of a ratchet/slip clutch and gearing of the idler roller and the drive roller -- can be employed with or without a push-type actuator.

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For example, those two features can be employed in a crank-type system.

Therefore, it is a primary object of the present invention to provide a dispenser for coiled material having an improved operator actuator and drive mechanism.

It is an additional object of the present invention to provide a dispenser for coiled material employing a push-button or push-type actuator for dispensing a predetermined length of towel through a discharge opening of the dispenser.

It is an additional object of the present invention to provide a dispenser for coiled material having an improved operator actuator in the form of a pendulum-type device.

It is an additional object of the present invention to provide a dispenser for coiled material having an improved operator actuator incorporating a rack and pinion drive mechanism.

It is an additional object of the present invention to provide a dispenser having a ratchet/slip clutch interconnecting a drive gear and drive roller of the dispenser so as to provide for unidirectional movement of the drive roller during operation of the dispenser.

It is an additional object of the present invention to provide a dispenser for coiled material in which the coiled material is conveyed to the discharge opening by means of cooperating drive and idler rollers, the drive and idler rollers being geared to each other so that the drive roller drives the idler roller, thereby maintaining pressure on both sides of the coiled material so as to prevent slippage and consequent jamming.

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The above and other objects of the invention, and the nature of the invention, will be clearly understood by reference to the following detailed description, the appended claims, and the accompanying drawings.

Brief Description of Drawings Figures

Figure 1 is a perspective view of the dispenser of the present invention.

Figure 2 is a side view of the dispenser of the present invention.

Figure 3 is an exploded view of the various component parts of the dispenser of the present invention.

Figure 4 is a detailed view of the ratchet/slip clutch interconnecting the drive gear and the drive roller.

Figure 5 is a side view of the actuator of the dispenser of the present invention, showing the spring-type mechanism by means of which the actuator is returned to its normal position when pressure is released by the user.

Best Mode for Carrying Out the Invention

The invention will now be described in more detail with reference to Figure 1, which is a perspective view of the dispenser of the present invention.

As seen in Figure 1, the dispenser 10 comprises the following basic external components: a cover 12, a door 14, a tray 16, a push-button or push-type actuator 18, and a discharge opening 20 through which paper 20a is dispensed.

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Figure 2 is a side view of the dispenser of the present invention. Elements or components common to Figures 1 and 2 are identified by identical reference numerals.

5 As seen in Figure 2, the dispenser 10 further comprises a rear panel 22, paper holder 24, idler roller 26, deflector 30, combination gear 32 and 34, drive gear 36, paper cutter 40, and gear rack 62. Gears 32, 34 and 36 form a pinion drive mechanism on which gear rack 62 operates.

10 15 Figure 3 is an exploded view of the components or elements of the dispenser of the present invention. Again, components or elements common to Figures 1 and 2, on the one hand, and Figure 3, on the other hand, are identified by identical reference numerals.

20 As seen in Figure 3, the dispenser 10 further comprises the following elements: drive roller 28 adjacent to idler roller 26, divider 38, paper cutter 40, ratchet/slip clutch 42, and transfer mechanism 50. The transfer mechanism 50 includes the following elements: legs 52a-52d, rollers 54a-54d, brace 56, transverse central arms 58a-58b, and torsion spring 60.

25 30 It should be noted that the exploded view of Figure 3 shows the various components of the dispenser 10 in a disassembled disposition for the purpose of providing a full view of each of the components elements thereof. Accordingly, Figure 3 should not be construed as showing the final position of each of the components and the final relative position between adjacent components once the dispenser is in its assembled state. This is particularly true with respect to the combination

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gear 32 and 34, drive gear 36, ratchet/slip clutch 42 (which is connected to drive gear 36 in the assembled state, as indicated by the dotted line in Figure 3), idler roller 26, and drive roller 28 (connected to ratchet/slip clutch 42 in the assembled state). A precise view of the final disposition of these latter elements is shown in Figure 2.

As seen in Figures 1-3, the dispenser 10 has a cover 12, inside of which a coiled material 20a, such as a non-perforated roll towel (also referred to as a "continuous roll" towel or a "hard wound roll" towel), is positioned on paper holder 24. More specifically, one side of the roll towel is held by paper holder 24, and there is a further paper holder (not shown) by means of which the other end of the roll towel is mounted on divider 38.

A door 14, preferably a transparent door, is mounted on cover 12 via hinge pins 14a and 14b. Thus, the door 14 can be rotated on hinge pins 14a and 14b to an upward or closed position, being secured by a latch mechanism 14c which is seated in a companion latch mechanism 12a on the cover 12. When the latch mechanism 14c is disengaged from the latch mechanism 12a, the door 14 may be rotated downwardly into the open position, thereby providing access to the roll towel within the cover 12 for the purpose of adjustment or replacement thereof.

The transfer mechanism 50 is a conventional arrangement provided in the dispenser 10 for the purpose of transferring feed from a partially consumed roll of coiled material to a fresh or reserve roll of coiled material. The transfer mechanism 50 is quite similar in structure and operation to the improved transfer mechanism

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disclosed in Cornell - 4,403,748, which has been reassigned to the assignee of the present invention, and the disclosure of Cornell - 4,403,748 is accordingly incorporated herein by reference thereto.

5 In short, a partially used roll is disposed in the lower portion of the dispenser 10 and, as the partially used roll is consumed, the transfer mechanism 50 functions to insert the free end of a fresh roll stored in an upper portion of the 10 dispenser 10 into a nip between idler roller 26 and drive roller 28 so that the sheet from the fresh roll is fed from the dispenser 10.

Further referring to the transfer mechanism 50 of Figure 3, it should be noted that legs 52a-52d 15 are inserted into molded-in eyelets (not shown) in the lower surface or floor of the tray 16 of the dispenser 10 during the assembly process, thereby fixing the transfer mechanism 50 in place within the dispenser 10.

20 As described in more detail below, drive roller 28 with its associated ratchet/slip clutch 42 provides for unidirectional paper feed, override pressure release, and direct gear contact with idler roller 26. As also described below, during 25 operation, idler roller 26 provides increased pressure against the middle of drive roller 28, thereby providing for self-centering of the sheet material as it moves within the dispenser 10.

Tray 16 incorporates a molded-in paper 30 deflector 30 (seen in Figure 2), the deflector 30 serving as a guide for the sheet material as it moves toward and through the discharge opening 20.

A paper cutter 40 is mounted in the lower portion of the tray 16, and provides the user with a

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means for severing a dispensed portion of sheet material from the major portion of sheet material remaining on the roll in the dispenser 10.

As also seen in Figure 3, in accordance
5 with the present invention, the push-button or push-type actuator 18 is provided in the form of a pendulum-type device. More specifically, actuator 18 has an upper portion 18a in which a hole is formed to permit the actuator 18 to be hingedly mounted on a
10 hinge pin 38a of divider 38. When so mounted during assembly of the dispenser 10, a lower portion or button portion 18b of actuator 18 is received within an open portion 16a of the tray 16, so that the user has access to the lower portion 18b of actuator 18
15 and can press on a front face of the portion 18b in order to operate the actuator 18 in the manner described in more detail below.

It should be noted that, with reference to Figures 2 and 3, when actuator 18 is mounted on hinge pin 38a, the lower portion 18b of actuator 18 is so disposed relative to divider 38 that combination gear 32 and 34, drive gear 36 and gear rack 62 assume relative positions as shown in Figure 2. Thus, the teeth of the smaller gear 32 (of combination gear 32 and 34) mesh with the downwardly facing protrusions or serrations on gear rack 62, while the teeth of larger gear 34 (of combination gear 32 and 34) mesh with the teeth of drive gear 36.
25

Further referring to Figures 1 thru 3, in
30 operation, when a user wishes to dispense paper from the dispenser 10, he presses on the front face of lower portion 18b of actuator 18. As a result, actuator 18 rotates in a counter-clockwise direction around hinge pin 38a, and the lower portion 18b moves

toward the rear panel 22 of dispenser 10. Consequently, the gear rack 62 located within the actuator 18 and having downwardly facing grooves or serrations (shown in Figure 2) moves a predetermined distance to the rear of dispenser 10. In moving toward the rear of dispenser 10, gear rack 62 rotates combination gear 32 and 34 in the clockwise direction, and this causes drive gear 36 to rotate in the counter-clockwise direction.

Drive gear 36 is joined with ratchet/slip clutch 42 and, as a result of movement of the drive gear 36, the ratchet/slip clutch 42 rotates in the counter-clockwise direction (as seen in Figure 3, within the interior of an end portion of drive roller 28, thereby rotating drive roller 28 in the counter-clockwise direction.

As drive roller 28 rotates in a counter-clockwise direction, co-action between end gear 28a of drive roller 28 and end gear 26a of idler roller 26 results in rotation of idler roller 26 in the clockwise direction. As a result, paper or sheet material located in the nip between idler roller 26 and drive roller 28 is moved downward between idler roller 26 and drive roller 28 so as to encounter the deflector 30, and the paper or sheet material is guided by deflector 30 to the discharge opening 20. Then, the user grips the paper or sheet material 20a (Figure 1) and subjects it to a tearing motion so as to cause the paper to bear against the cutter 40 (Figures 2 and 3), thereby severing the dispensed portion of the paper or sheet material 20a from the remaining portion in the dispenser 10.

Figure 4 is a more detailed view of the ratchet/slip clutch 42 of Figure 3. As seen therein,

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5 ratchet/slip clutch 42 interconnects drive roller 28 and drive gear 36. Drive roller 28 comprises a drive gear 28a (previously discussed) and an end portion 28c having a grooved interior 28b. Ratchet/slip clutch 42 comprises fins 42a, a protruding stem portion 42b, a sleeve 42c having protruding portions 42d forming a grooved interior of the sleeve 42c, an end piece 42e, and a grooved stem portion 42f which is designed to fit within the grooved interior 28b of end portion 28c of drive roller 28.

10 Fins 42a of ratchet/slip clutch 42 are oriented in such a direction that, when fins 42a are disposed within the interior of sleeve 42c, fins 42a are capable of rotating freely in a clockwise direction within the sleeve 42c, but rotation of the 15 fins 42a in a counter-clockwise causes fins 42a to bear against the protruding portions 42d within the interior of sleeve 42c, thus rotating sleeve 42c and end portion 42f of ratchet/slip clutch 42 in the 20 counter-clockwise direction.

25 It should also be noted that the protruding stem portion 42b of ratchet/slip clutch 42 is, preferably, octagonal in shape, and the stem portion 42b is seatable in a corresponding octagonal recess 36a in drive gear 36. Of course, conversely, drive gear 36 could just as easily be provided with a stem which would fit into a recess in the center of fins 42a of ratchet/slip clutch 42 so as to interconnect 30 drive gear 36 and ratchet/slip clutch 42.

As described above, when a user wishes to dispense paper from the dispenser 10, he presses on the front face of lower portion 18b of actuator 18 (see Figures 1 thru 3). As a result, actuator 18 rotates in a counter-clockwise direction about hinge

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pin 38a, the lower portion 18b moves toward the rear panel 22 of dispenser 10, and the gear rack 62 located within the actuator 18 moves a predetermined distance to the rear of dispenser 10. In the process, gear rack 62 rotates combination gear 32 and 34 in the clockwise direction, causing drive gear 36 to rotate in the counter-clockwise direction.

Referring to Figure 4, counter-clockwise rotation of drive gear 36 results in a corresponding counter-clockwise rotation of protruding stem portion 42b of ratchet/slip clutch 42. This results in counter-clockwise rotation of fins 42a, as a result of which the fins 42a bear against protruding portions 42d within the interior of sleeve 42c, and this results in counter-clockwise rotation of sleeve 42c and end portion 42f connected thereto. Since the grooved end portion 42f of ratchet/slip clutch 42 is contained within the grooved interior 28b of end portion 28c of drive roller 28, counter-clockwise rotation of end portion 42f results in corresponding counter-clockwise rotation of drive roller 28. As explained above with reference to Figures 1 thru 3, this results in movement of the paper or sheet material between idler roller 26 and drive roller 28 so that the paper or sheet material is dispensed from dispenser 10.

As mentioned earlier, ratchet/slip clutch 42 can be employed to interconnect drive gear 36 and drive roller 28 in a dispenser, regardless of whether or not a push-type actuator is employed. For example, ratchet/slip clutch 42 can be employed in a crank type system.

Figure 5 is a view of the inner side of the actuator of Figure 3. More specifically, Figure 5 is

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a view of that side of actuator 18 closest to divider 38 of Figure 3 when the actuator 18 is mounted on hinge pin 38a.

As seen in Figure 5, a spring 18c extends 5 horizontally along the width of the upper portion 18a of actuator 18. An end 18d of spring 18c is connected to a pin 18f at the rear face of actuator 18, the other end 18e of spring 18c being connected 10 to a point 38b near the front edge of divider 38 (Figure 3).

During operation of actuator 18 by the user, spring 18c is elongated due to rearward movement of the actuator 18. Once the operator releases pressure on the lower portion 18b of actuator 18, spring 18c urges actuator 18 back to its 15 normal position. That is, clockwise rotational movement of the actuator 18 about hinge pin 38a results in movement of lower portion 18b toward the front of the dispenser 10, and actuator 18 thereby 20 assumes its original position. This horizontal return movement of portion 18b results in a corresponding movement of gear rack 62, and as a result combination gear 32 and 34 is rotated in the counter-clockwise direction. This results in 25 clockwise rotation of drive gear 36 which, in turn, causes the fins 42a of ratchet/slip clutch 42 to rotate in the clockwise direction within the sleeve 42c of ratchet/slip clutch 42. However, as discussed above with reference to Figures 3 and 4, the fins 42a 30 of ratchet/slip clutch 42 are so oriented as to merely slip in the counter-clockwise direction within the interior of sleeve 42c so that end portion 42f remains stationary, thereby causing no motion of drive roller 28 or of idler roller 26 (which is

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geared to drive roller 28 via gear 26a associated with gear 28a).

To summarize, the dispenser 10 of the present invention is provided with a pendulum-type actuator 18 hingedly mounted on divider 38 via hinge pin 38a. As described above, the actuator 18 can be caused to rotate in the counter-clockwise direction about hinge pin 38a as a result of the user's pressing on lower portion 18b so as to move it toward the rear of dispenser 10. A reactive force in spring 18c causes the actuator 18 to rotate in a clockwise direction once the user releases pressure on lower portion 18b, thereby moving lower portion 18b in a horizontal direction toward the front of dispenser 10 so that lower portion 18b assumes its original position. Thus, the gear rack 62 contained within the interior of actuator 18 is horizontally reciprocative, that is, it moves to the rear of the dispenser 10 when the user operates the actuator, and it returns to the front of dispenser 10 when the user releases pressure on the actuator 18.

Finally, it is preferable that the ratchet/slip clutch 42 (Figures 3 and 4) and/or drive gear 36 of the present invention be designed so as to provide the dispenser 10 with an override pressure release capability. That is to say, the octagonal recess 36a of drive gear 36 and/or the protruding stem portion 42b of ratchet/slip clutch 42 should be designed with some mutual slippage between those elements inherent therein. In that way, when and if a jam occurs in the dispenser 10, if excess pressure is applied by the user on actuator 18 in an attempt to release and dispense the paper 20a, the pressure exerted on the actuator 18 by the user will cause the

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octagonal recess 36a in drive gear 36 to slip around the protruding stem portion 42b of the ratchet/slip clutch 42 until the jam is cleared and the drive roller 28 can rotate freely.

5 While preferred forms and arrangements have been shown in illustrating the invention, it is to be understood that various changes in detail and arrangement may be made without departing from the spirit and scope of this disclosure.

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Claims

1. A dispenser having a discharge opening for dispensing coiled material, comprising:

holding means for holding the coiled material within the dispenser;

delivery means for withdrawing the coiled material from said holding means and for delivering the coiled material to the discharge opening; and

actuator means operable by a user for activating said delivery means to withdraw the coiled material from said holding means and to deliver the coiled material to the discharge opening;

wherein said actuator means comprises a push button which is located on an external portion of the dispenser and which is pressed by the user to dispense the coiled material; and

wherein said delivery means comprises a drive roller having a drive gear operatively associated therewith, said delivery means further comprising a ratchet/slip clutch interconnecting said drive gear and said drive roller to provide for unidirectional movement of said drive roller; and

wherein said ratchet/slip clutch comprises a generally cylindrical element having a surface and fin means disposed on said surface for permitting said ratchet/slip clutch to rotate freely in a first direction.

2. The dispenser of claim 1, wherein said push button comprises a pendulum-type device rotatably mounted in said dispenser.

3. The dispenser of claim 1, wherein said actuator means comprises a horizontally reciprocative drive mechanism operatively associated with said push button.

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4. The dispenser of claim 3, wherein said horizontally reciprocative drive mechanism comprises a gear rack horizontally disposed within said dispenser.

5. The dispenser of claim 4, said gear rack having grooves disposed thereon for acting on said drive gear to move said drive gear and said drive roller.

6. The dispenser of claim 1, wherein said ratchet/slip clutch comprises a sleeve having an interior cavity, said interior cavity having interior protruding portions, said fin means being disposed and rotatable within said interior cavity, said fin means engaging said interior protruding portions of said interior cavity when said fin means rotates in a second direction, thereby rotating said sleeve in the second direction, said sleeve being joined to said drive roller for rotating said drive roller in the second direction.

7. A dispenser having a discharge opening for dispensing coiled material, comprising:

holding means for holding the coiled material within the dispenser;

delivery means for withdrawing the coiled material from said holding means and for delivering the coiled material to the discharge opening; and

actuator means operable by a user for activating said delivery means to withdraw the coiled material from said holding means and to deliver the coiled material to the discharge opening;

wherein said actuator means comprises a horizontally reciprocative drive mechanism; and

wherein said delivery means comprises a drive roller, a drive gear arrangement, and a

ratchet/slip clutch interconnecting said drive gear arrangement and said drive roller to provide for unidirectional movement of said drive roller; and

wherein said ratchet/slip clutch comprises a generally cylindrical element having a surface and fin means disposed on said surface for permitting said ratchet/slip clutch to rotate freely in a first direction.

8. The dispenser of claim 7, wherein said horizontally reciprocative drive mechanism comprises a gear rack horizontally disposed within said dispenser.

9. The dispenser of claim 8, said gear rack having grooves disposed thereon for acting on said drive gear arrangement to move said drive gear arrangement and said drive roller.

10. A dispenser having a discharge opening for dispensing coiled material, comprising:

holding means for holding the coiled material within the dispenser;

delivery means for withdrawing the coiled material from said holding means and for delivering the coiled material to the discharge opening; and

actuator means operable by a user for activating said delivery means to withdraw the coiled material from said holding means and to deliver the coiled material to the discharge opening;

wherein said delivery means comprises a drive roller having a drive gear operatively associated therewith, said delivery means further comprising a ratchet/slip clutch interconnecting said drive gear and said drive roller to provide for unidirectional movement of said drive roller; and

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wherein said ratchet/slip clutch comprises a generally cylindrical element having a surface and fin means disposed on said surface for permitting said ratchet/slip clutch to rotate freely in a first direction.

11. The dispenser of claim 10, wherein said ratchet/slip clutch comprises a sleeve having an interior cavity, said interior cavity having interior protruding portions, said fin means being disposed and rotatable within said interior cavity, said fin means engaging said interior protruding portions of said interior cavity when said fin means rotates in a second direction, thereby rotating said sleeve in the second direction, said sleeve being joined to said drive roller for rotating said drive roller in the second direction.

12. A dispenser having a discharge opening for dispensing coiled material, comprising:

holding means for holding the coiled material within the dispenser;

delivery means for withdrawing the coiled material from said holding means and for delivering the coiled material to the discharge opening; and

actuator means operable by a user for activating said delivery means to withdraw the coiled material from said holding means and to deliver the coiled material to the discharge opening;

wherein said delivery means comprises a drive roller having a drive gear operatively associated therewith, said delivery means further comprising an idler roller having an idler gear operatively associated therewith, said drive gear being in contact with said idler gear, said drive roller and said idler roller rotating in unison but

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in opposite directions when said delivery means is activated by the user, the coiled material passing between said drive roller and said idler roller as said drive roller and said idler roller rotate in unison, thereby maintaining pressure on both sides of said coiled material so as to prevent slippage of said coiled material as it is delivered to said discharge opening and dispensed.

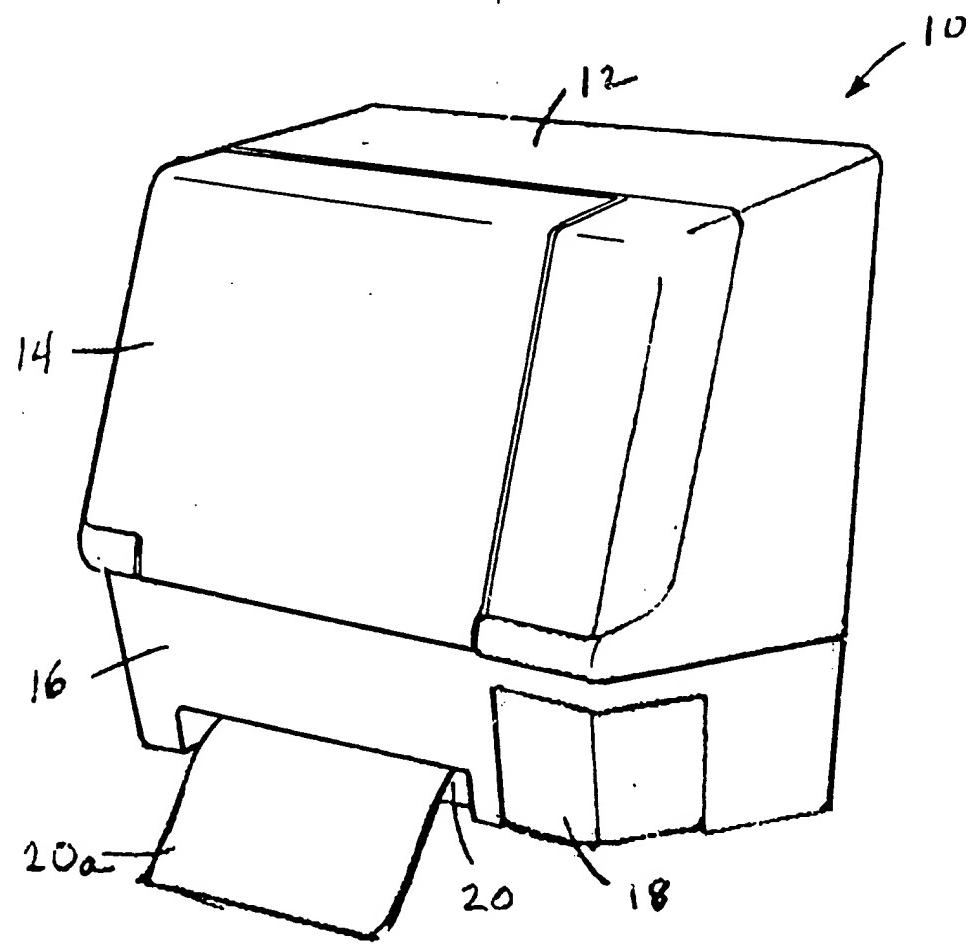
13. The dispenser of claim 12, wherein said delivery means further comprises a ratchet/slip clutch interconnecting said drive gear and said drive roller to provide for unidirectional movement of said drive roller.

14. The dispenser of claim 13, wherein said ratchet/slip clutch comprises a generally cylindrical element having a surface and fin means disposed on said surface for permitting said ratchet/slip clutch to rotate freely in a first direction.

15. The dispenser of claim 14, wherein said ratchet/slip clutch comprises a sleeve having an interior cavity, said interior cavity having interior protruding portions, said fin means being disposed and rotatable within said interior cavity, said fin means engaging said interior protruding portions of said interior cavity when said fin means rotates in a second direction, thereby rotating said sleeve in the second direction, said sleeve being joined to said drive roller for rotating said drive roller in the second direction.

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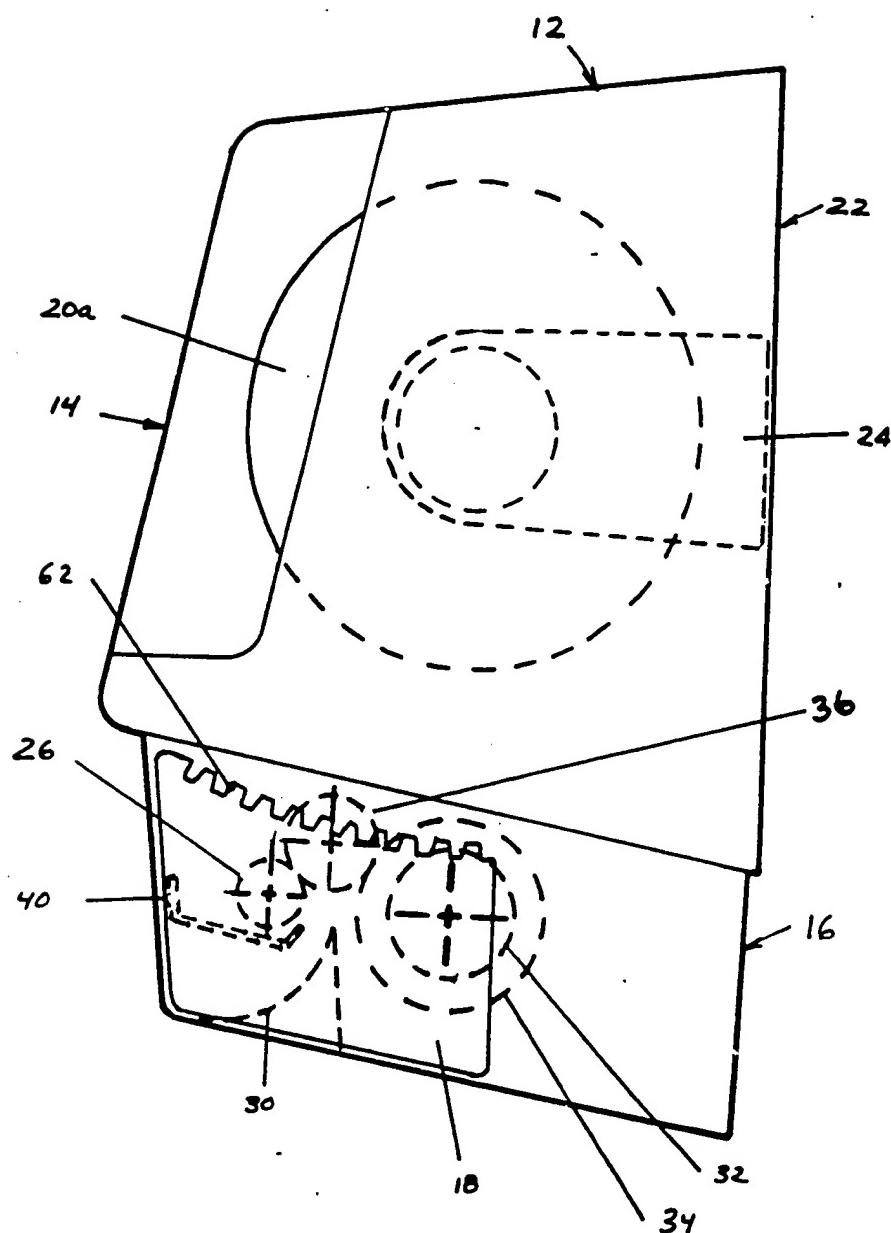
FIG. 1



Brouillette Clark Woods
BROUILLETTE CLARK WOODS
PATENT AGENTS

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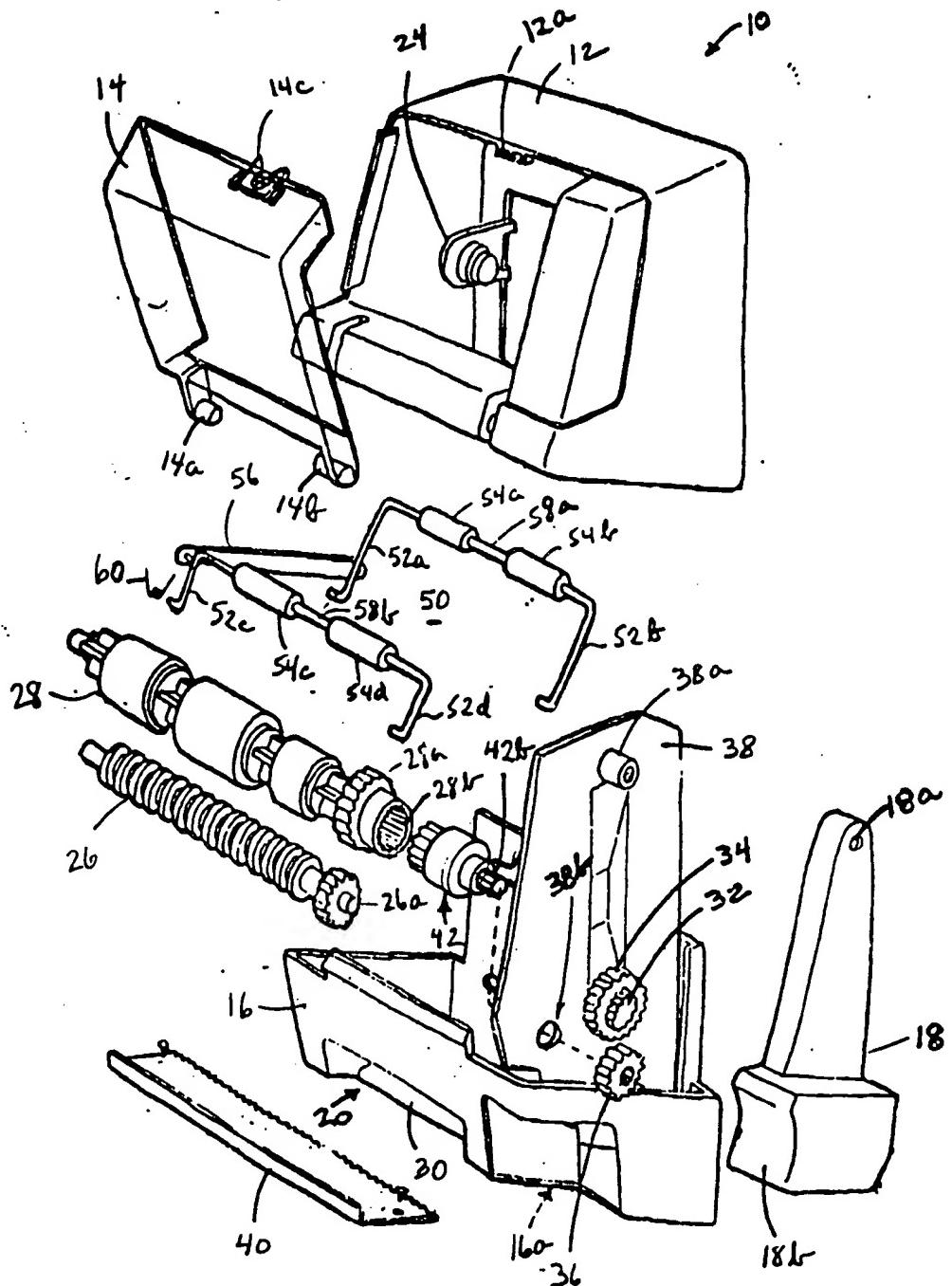
FIG. 2



Brouillette Clark Woods
BROUILLETTE CLARK WOODS
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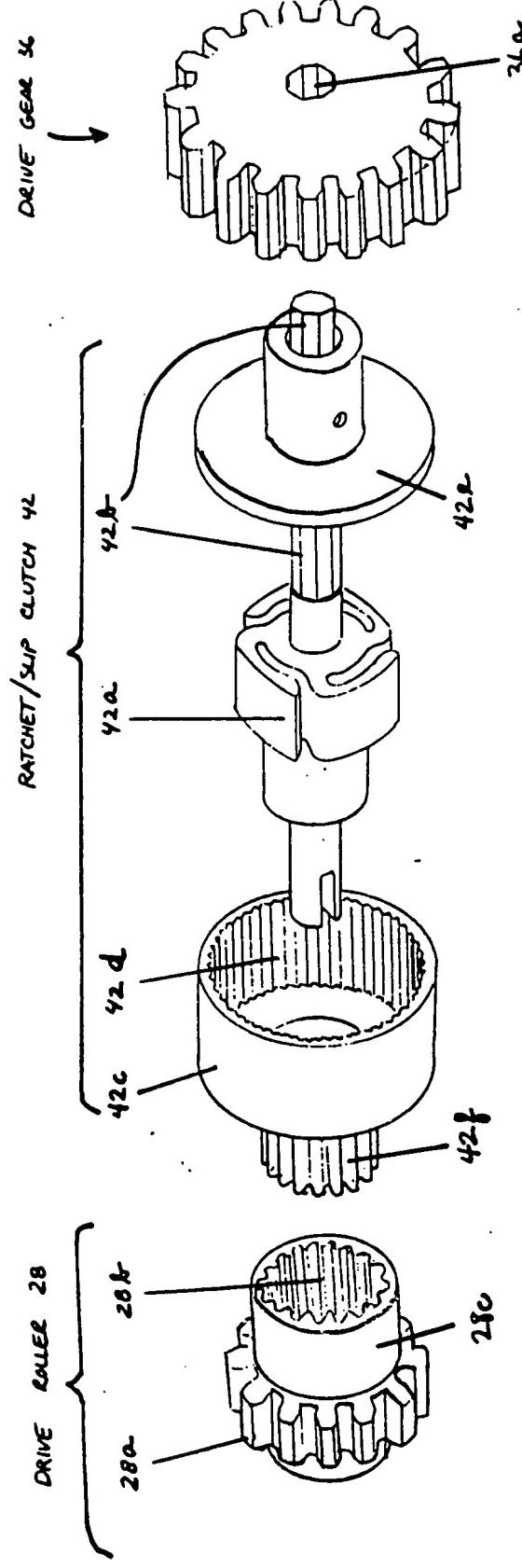
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FIG. 3



Brouillette Clark Woods
BROUILLETTE CLARK WOODS
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FIG. 4



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BROUILLETTE CLARK WOODS
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FIG. 5

